Failing the challenge: Diabetes apps & long-term daily adoption

Conference or Workshop Item

Failing the challenge: Diabetes apps & long-term daily adoption

D.Katz,N.S.Dalton, B.A.Price
Centre for Research in Computing, The Open University, UK

"A diabetes app is a constant reminder that you have a life-threatening chronic condition." -P16

Introduction

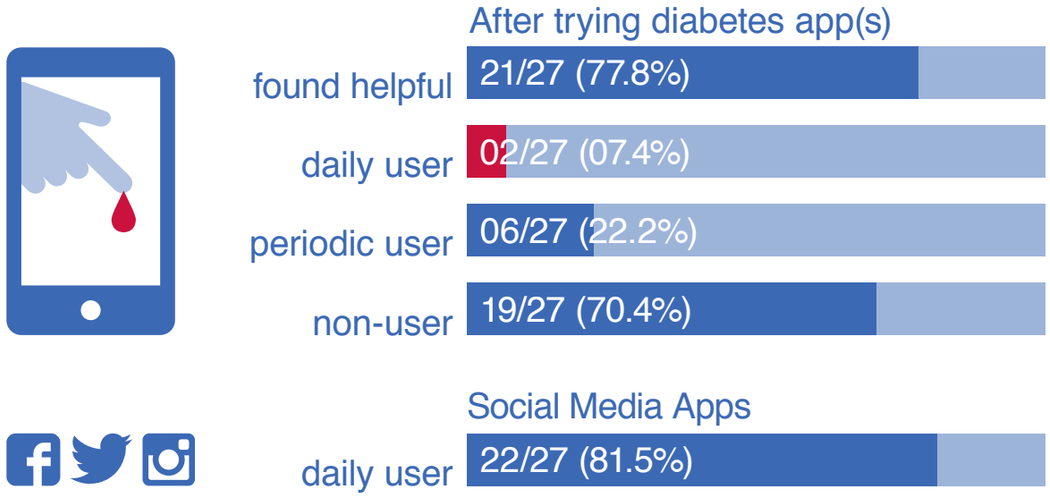
Diabetes spending is responsible for more than 10% of worldwide health costs[1]. Mobile health has emerged as a strategy for supporting healthier lifestyles and relieving over-burdened medical systems. In 2013 only 1.2% of diabetics with a smartphone were estimated to be using a diabetes app.[2] We looked at the real-world behavior of people with diabetes who had used these apps, in order to learn more about the effects of these products in their lives. Participants were interviewed about their views and experiences on diabetes and non-diabetes related apps. We found the majority of participants were no longer using apps as part of their daily diabetes self-management, despite a generally positive assessment of these products. The lack of "stickiness" (the tendency to stay and return to a product), suggests that significant barriers to adoption remain to be solved.

Methods

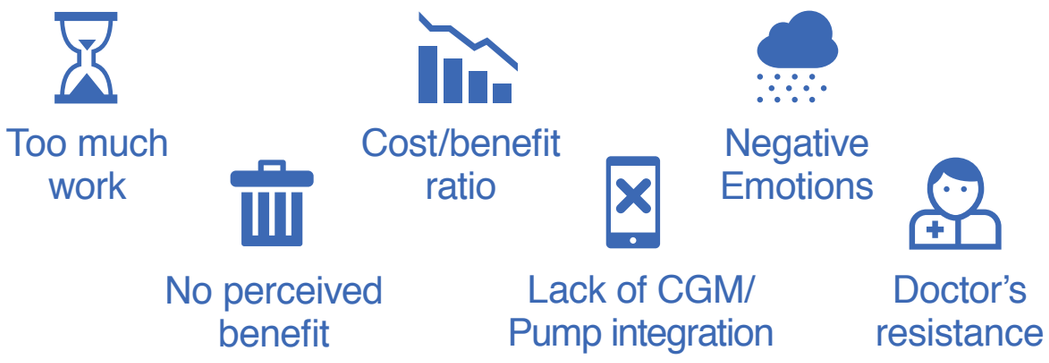
Qualitative and quantitative study data were collected and analyzed. Inclusion criteria: Diabetic or parent of a diabetic minor; personal ownership of a smartphone; previous experience with a diabetes app. Participants were recruited for structured interviews through diabetes related social media, and diabetes related events. Participants: n=27, 26 T1, 1 T2. Age range: 3-61 years, mean 31.3 years (SD ±13.1). Diabetes duration: range 1-54 years, mean 15.67 (SD± 12.26). Gender: 37% female.

Results

While the majority of respondents reported diabetes apps as "very" or "somewhat" helpful this did not translate to daily long-term usage. There were many reasons given, but most seemed reluctant to add workload without significant gains.



Reasons for ceasing diabetes app use



Emotional barriers to adoption

Many participants expressed significant negative emotions related to the use of diabetes apps.

Stigma

P3: A diabetes app "reminds me of my weakness"
P11: …diabetes apps made him me feel like an "outsider" as opposed to Facebook which makes him feel like "one of the crowd."

Data is emotional

P13: Felt bad when entering perceived "bad" values.
P14: Stopped using app because she didn't like entering undesired values. Felt she wasn't improving.
P20: Having to enter out of optimal range values negatively influenced feelings.

Blame

P5: Negative feedback from app made her feel bad.
P27: Doesn't want to be judged on numbers, thinks app doesn't understand context

Fatigue

P14: Virtual rewards of app gamification quickly lost meaning. Novelty was short lived.
P16: "I see my diabetes as my credit rating, I don't want to be reminded of it everyday – only when there's something I need to be aware of."

Discussion & Further Research

What substantial benefits can a diabetes app offer beyond the ability to view logged data and earn virtual badges?

Are there differences for implementation of chronic disease management apps vs. general health apps?

Will reducing workload through automating data input be enough to encourage adoption?

How can an app present undesired data, without discouraging the user?

How do we determine which app approach has the best chance of adoption for a given person or personality type?

Conclusions

This pilot survey suggests that there is still much work to be done to support long-term daily adoption of diabetes apps. While there are numerous technical hurdles to be overcome, such as better device connectivity and automation, understanding the user experience of the consumer will be critical in building apps that people want to use. We need to better understand the needs, goals and feelings of actual users, recognizing that short-term clinical studies are very different from real-world conditions.

Chronic disease management presents special challenges, and the stakes are much higher. It is not yet known whether adoption strategies that have proven effective in other areas, such as gaming or social networks, will be equally effective here.

We suspect that systems that can both assist users in real-time decision making while being sensitive to their current emotional state, will have a better chance of being incorporated into daily self-management routines. The American Association of Diabetes Educators Guidelines (AADE7)[3], emphasize the need for "healthy coping" as essential to diabetes self-management. We envisage that apps, which creatively implement this evidence-based recommendation are more likely to succeed.

Citations:
[1] IDF Diabetes Atlas Sixth Edition, 2013
[2] Research2guidance, Diabetes App Market Report, 2014
[3] AADE Guidelines for the Practice of Diabetes Self-Management Education and Training, 2010

For more information:
dmitri.katz@my.open.ac.uk